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01 November 2019

Version of attached file:

Published Version

Peer-review status of attached file:

Peer-reviewed

Citation for published item:

Van de Vyver, J. and Abrams, D. and Spinner, L. and Pelletier, J. and Ali, S.Y. and Kapantai, I. (2019) 'Participatory arts interventions promote interpersonal and intergroup prosocial intentions in middle childhood.', *Journal of applied developmental psychology*, 65 . p. 101069.

Further information on publisher's website:

<https://doi.org/10.1016/j.appdev.2019.101069>

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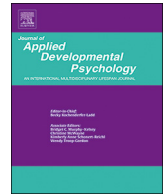
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Participatory arts interventions promote interpersonal and intergroup prosocial intentions in middle childhood

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ARTICLE INFO

Keywords:

Arts and creativity
Prosocial intentions
Empathy
Intergroup bias

ABSTRACT

We report the results of two experiments which test the potential of arts engagement for promoting prosocial intentions. Experiment 1 ($N = 216$) tested the impact of a participatory arts intervention (vs. a control condition) on children's empathy and interpersonal prosocial intentions. Experiment 2 ($N = 174$) tested the impact of a participatory arts intervention (vs. a control condition) on children's prosocial intentions toward outgroup members under competitive and non-competitive conditions. Experiment 1 showed that the participatory arts intervention significantly increased children's interpersonal prosocial intentions, but not their empathy. Experiment 2 showed that, under competitive conditions, the participatory arts intervention significantly increased prosocial intentions toward outgroup members, an effect that persisted for six months beyond the intervention. Under non-competitive conditions, the participatory arts intervention consolidated improvements in prosocial intentions toward outgroup members. Overall, the results confirm the hypothesis that participatory arts engagement can promote prosocial intentions during middle childhood.

"Psychologists and educators have, by and large, overlooked this universal interest [artistic activity] and neither is making any serious attempt to incorporate such education in their respective areas of interest."

(Sigel & Gitomer, 1992, p. 467).

Prosociality

Prosocial responses can broadly be understood as those aimed at benefitting others. Examples of prosocial responses include helping, sharing with, and caring for others (Abrams, Van de Vyver, Pelletier, & Cameron, 2015). Research shows that humans frequently and intuitively engage in prosociality (Crockett, Kurth-Nelson, Siegel, Dayan, & Dolan, 2014). During early childhood, children develop the ability to accurately take the perspective of another (e.g., in terms of goals, wants, needs and desires), to understand another's negative emotional state (empathy), to recognise when a goal is unfulfilled, and to detect the source of a problem (Dunfield, 2014; Paulus, 2018). These

antecedents of prosociality as well as prosocial responses themselves become integrated and well-established by middle childhood (Dunfield, 2014).

Experiences of, and engagement in, prosociality are essential for personal and societal wellbeing. For example, engagement in prosociality improves personal wellbeing among children (Flouri & Sarmadi, 2016), adolescents (Layous, Nelson, Oberle, Schonert-Reichl, & Lyubomirsky, 2012), and adults (Nelson, Layous, Cole, & Lyubomirsky, 2016). Human prosociality and cooperation are also essential for tackling societal problems such as environmental degradation, humanitarian crises, and inequality. Therefore, it is essential to understand the conditions that can promote greater prosocial engagement.

Intergroup prosociality

Importantly, children from the age of three develop an awareness of social categories, and by age five they are more likely to help ingroup compared to outgroup members (Abrams et al., 2015; Nesdale, 2004; Over, 2018; Sierksma, Thijs, & Verkuyten, 2015). This intergroup bias

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<https://doi.org/10.1016/j.jappdev.2019.101069>

Received 10 October 2018; Received in revised form 11 September 2019; Accepted 19 September 2019

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in prosociality is evident across the lifespan (Levine, Cassidy, Brazier, & Reicher, 2002; Stürmer, Snyder, & Omoto, 2005), and has detrimental effects on societies across the world. Intergroup bias has a clear developmental trajectory. Specifically, intergroup bias tends to increase gradually from as young as three years and to peak during middle childhood (Raabe & Beelmann, 2011).

Moreover, the extent to which children display intergroup bias, and the age at which they express intergroup bias, varies depending on the complexity of the intergroup context (Rutland, Killen, & Abrams, 2010). For example, when deciding whom to include in a club, children are more likely to justify inclusion on the basis of group membership and stereotypes when there is only space for one child (and two peers from different groups want to join) compared to when there are sufficient spaces for all children (Killen, Pisacane, Lee-Kim, & Ardila-Rey, 2001). In other words, children show less intergroup bias in straightforward (vs. complex) intergroup contexts and this impact of situational complexity on intergroup bias appears from as young as four years of age (Killen et al., 2001). Similarly, Abrams et al. (2015) demonstrated that children are less likely to help outgroup members in a competitive (i.e., complex) context than in a non-competitive (i.e., straightforward) context. Given that these types of situational complexities are inherent across societies and given that prejudice against minority groups is often associated with perceptions that they are competing for resources (Cuddy, Fiske, & Glick, 2007; Van de Vyver, Leite, Abrams, & Palmer, 2018), it is important to understand whether and how we can promote outgroup prosociality under competitive as well as non-competitive contexts.

Arts engagement

Artistic practices transcend geographic and historic boundaries, and it has been contended that artistic expression is part of an evolutionary mechanism for creating and maintaining social ties within humans (Pearce, Launay, & Dunbar, 2015). Any person in any part of the world can engage in the arts in one way or another and can hence establish shared meaning through the experience or creation of arts. Arts cover a broad and inclusive range of activities where creativity and self-expression are key (Broadwood, Bunting, Andrews, Abrams, & Van de Vyver, 2012). Arts offer opportunities to express and share viewpoints, feelings, ideas, stories, and values. Arts can build connections between artists and audiences, as well as within audiences and participants. When people engage with the arts they are creating meaning for themselves. Collaborative arts projects in particular enable people to make sense of the world together (cf. Broadwood et al., 2012). Some might argue that arts engagement activates mental simulation which “involves mentally transcending the ‘here-and-now’ to occupy psychologically a different time (past or future), a different place, a different person's subjective experience, or a hypothetical reality. In other words, simulation involves conjuring up the experience of something other than that which one is currently experiencing” (Waytz, Hershfield, & Tamir, 2015, p. 337).

There are two relevant conceptual frameworks (Broadwood et al., 2012; Tay, Pawelski, & Keith, 2018) which aid our understanding of the socio-emotional impacts of the arts. Specifically, Tay et al.'s (2018) recent model proposes that the arts can promote wellbeing, broadly construed to include prosocial behavior. They suggest that arts engagement can produce four groups of outcomes which include (1) immediate neurological, physiological, and psychological outcomes, (2) enduring socio-cognitive and psychological competences (e.g., self-efficacy, creativity), (3) physical and psychological wellbeing, and (4) positive normative outcomes (e.g., values, morality, and civic engagement). Tay et al. (2018) identify four psychological processes through which arts engagement can affect these outcomes which include: immersion (“feeling carried away”), embeddedness (building socio-cognitive competencies), socialization (creating connections and identities), and reflectiveness (socio-moral reflection).

Based on an extensive review of the literature (Broadwood et al., 2012), the *Arts and Kindness* model proposes that the arts have the potential to act as a social psychological catalyst for promoting human prosociality. The model proposes that there are four key routes through which arts engagement can promote prosociality: emotion (somewhat akin to immersion), learning (akin to embeddedness), values (akin to reflectiveness), and social connection (akin to socialization). Broadwood et al. (2012) and Tay et al. (2018) both propose that arts engagement has the potential to promote prosociality. Both models also emphasize that routes from specific or more general arts engagement can include short or longer term influences, be proximal or distal from particular events, and may be weighted differently depending on the particular art forms or context.

Empathy

Empathy can be defined as an emotional reaction elicited by and congruent with another's emotional state or condition (Eisenberg & Fabes, 1998). Both Tay et al. (2018) and Broadwood et al. (2012) argue that the arts have a strong potential to promote empathy. Indeed, many arts activities will naturally align individuals into states of togetherness and will transport participants into the artists', the protagonists', or even fellow participants' lived or imagined experiences (Tay et al., 2018). Such joint states of togetherness and shared perspective facilitate the capacities needed for empathy (Rabinowitch, Cross, & Burnard, 2013). Empirical evidence in middle childhood indeed demonstrates that engagement in drama (Goldstein & Winner, 2012) and in music (Rabinowitch et al., 2013) promote empathy compared to control conditions. Moreover, it is well-established that empathy is crucial for building positive interpersonal and intergroup relationships (e.g., Abrams et al., 2015; Fabes, Eisenberg, & Eisenbud, 1993). Therefore, and in line with Broadwood et al. (2012), we hypothesize that empathy may be an important mechanism in explaining the relationship between arts engagement and prosocial intentions in middle childhood.

Adults

The relatively small body of psychological research that has examined the impact of arts engagement on prosocial outcomes is promising. Among adults different studies of specific art forms (e.g., singing, dancing, reading, acting) have provided evidence that engagement with that particular art form can promote empathy (Mar, Oatley, Hirsh, dela Paz, & Peterson, 2006) or prosocial responses (Greitemeyer, 2009; Johnson, Cushman, Borden, & McCune, 2013; Wiltermuth & Heath, 2009). Using a representative and longitudinal sample of over 30,000 adults in the UK, Van de Vyver & Abrams (2017) established a reliable and substantively meaningful longitudinal relationship between arts engagement and subsequent prosociality, even when accounting for socio-demographic variables, income, and personality differences.

Children

Among children, joint music making has been shown to promote within-group prosociality among 4-year olds (Kirschner & Tomasello, 2010) and interpersonal prosociality among 8–9 year olds (Schellenberg, Corrigan, Dys, & Malti, 2015). Tangentially, engagement in synchronous movement promotes interpersonal prosociality during early and middle childhood (Cirelli, Einarson, & Trainor, 2014; Rabinowitch & Meltzoff, 2017a; Rabinowitch & Meltzoff, 2017b; Tunçgenç & Cohen, 2018) and intergroup bonding in middle childhood (Tunçgenç & Cohen, 2016).

Given that children seem to naturally and readily engage in artistic activities, and are often asked to do so at school, it is surprising that there is relatively little research examining its impacts on their socio-

emotional development. Specifically, the potential social benefits of arts engagement have rarely been researched in developmental and social psychology (see Goldstein, Lerner, & Winner, 2017; Van de Vyver & Abrams, 2017), and therefore represents an important area of investigation for applied developmental research.

The current research

The current paper builds on these related strands of research. Specifically, we test a number of novel research questions. Separate studies have shown that engagement in specific art forms (e.g., singing) promotes empathy and interpersonal prosociality, but research has not tested whether engagement in a *participatory arts intervention* also promotes empathy and interpersonal prosociality. In Study 1 we test the hypothesis that engagement in a participatory arts intervention also promotes empathy and interpersonal prosocial intentions. Moreover, while recent research has shown that synchronous movement promotes bonding with outgroup members (Tuncgenç & Cohen, 2016), no research has examined whether engagement in the arts can promote outgroup-targeted prosociality. Study 2 extends past research by testing whether participatory arts engagement can promote outgroup-targeted prosocial intentions across competitive and non-competitive contexts. Notably, past research has examined the immediate impact of some types of arts engagement on prosociality, but it has not tested whether effects endure. Study 2 tests the hypothesis that the impact of arts engagement on children's prosocial intentions persists over a period of 6 months.

In summary, across two field studies using experimental and longitudinal designs, we test the impact of participatory arts interventions on children's prosocial intentions. In Study 1 we employ a 2 (Condition: experimental vs. control) \times 2 (Time: pre-intervention vs. post-intervention) mixed model design and measure effects on children's empathy and interpersonal prosocial intentions. In Study 2 we employ a 2 (Condition: experimental vs. control) \times 3 (Age: 5–6 vs. 7–8 vs. 9–10 years) \times 3 (Time: pre-intervention vs. one month post-intervention vs. six month post-intervention) mixed model design and measure effects on children's outgroup prosocial intentions in a competitive and in a non-competitive context. Interpersonal prosociality is well-established by middle childhood (Dunfield, 2014) and therefore we do not expect or explore age-related differences within the age range in Study 1. In contrast *intergroup bias* is known to increase and become more context sensitive during middle childhood (Raabe & Beelmann, 2011; Rutland et al., 2010), so it is possible that age may moderate the hypothesized impacts of arts engagement on outgroup-targeted prosocial intentions. This is tested in Study 2.

Study 1

Method

Participants and design

A-priori power analysis revealed that to detect a small to medium sized effect ($\eta^2 = .03$) with 90% power for a 2×2 mixed model ANOVA design, we required a total sample size of 122 participants. Two hundred and sixteen children (102 male, 114 female) completed the study¹. Children were aged between 7 years and 10 years (grades 2, 3,

¹ One challenge in this study was that children had difficulty in accurately recording their birthday information that was required to create a consistent participant ID. We were unable to match 62.8% of the data across Time 1 and Time 2. Importantly, there were no differences between the matched versus unmatched sample on baseline gender, empathy, or prosocial intention (all p 's $> .406$). There was however a significant difference between the matched versus unmatched sample on age ($p = .001$). This likely reflects the fact that the younger children were less consistent in recording the numerals linked to their birthdays and/or were more likely to make errors when writing other elements

and 4; mean age = 8.20, $SD = 0.86$). The study used a 2 (Condition: experimental vs. control) between participants \times 2 (Time: pre-intervention vs. post-intervention) within participants design.

Participants were sampled from across three demographically and geographically matched elementary schools in the UK. Overall, 96% of participants were born in the UK and this was consistent across condition (96% in the experimental condition and 95% in the control condition). One of the schools experienced the intervention ($N = 140$). The other two served as control schools ($N = 76$). The study consisted of two testing times which were approximately twelve months apart, 60 weeks prior to and 1–2 weeks after the intervention.

Procedure

In the experimental condition children in grades 2, 3, and 4 engaged in a participatory arts program which was administered at school and during the school day by an independent arts organisation. Participatory arts involve engagement in a range of art forms, that inherently include the audience in the creative process, allowing them to become co-authors, editors, and observers of the work. Arts Council England define participatory arts as follows: "Participation is a malleable dialogue that informs the work of the artist, builds and develops audiences, engages with communities, promotes learning and forges routes into active experience and artistic creation of many kinds. Participatory arts are now mainstream and are central to the core programme of many large arts organisations" (Arts Council England, 2010).

In the experimental condition (or intervention school) local artists worked with every pupil and staff member over a period of one week to document and celebrate good news stories. Many schools already have programs in place to discuss and try to promote prosocial attitudes and social engagement (Education Commission of the States, 2016; UK Government, 2018). However, the present interventions were not prescriptive to convey a moral message. Instead, local artists explored the potential of using creativity and arts activities to help children to engage with and express stories of kindness. Example activities included: writing a song, producing art installations, producing story books, and making community artboards. The control schools only exposed children to routine curriculum-based discussions of kindness. Children in grades 2, 3, and 4 were invited to complete the pre and post questionnaires.

Measures

Empathy

We employed the 10-item measure of children's empathy used by Abrams et al. (2015). Example items are: "I get upset when I see someone get hurt" and "seeing someone who is crying makes me feel like crying". Children responded from 1 (*big frown*) to 5 (*big smile*). Reliability analysis revealed low Cronbach's alphas for this scale (.57 at Time 1 and .44 at Time 2). We conducted a follow-up factor analysis with the 10 empathy items (using maximum likelihood to extract one factor). Following guidelines from Comrey and Lee (1992) we retained only items with a "fair" factor loading (.45 or higher). The final scale consisted of three items (all loadings were above .52 at Time 1 and above .56 at Time 2). The three retained items were: "I get upset when I see someone getting hurt", "Seeing someone who is crying makes me feel like crying", and "It makes me sad when I see someone who can't find anyone to play with". Cronbach's alphas were: .64 (Time 1) and .69 (Time 2). The three items were mean scored within each time point.

(footnote continued)

of their participant ID code. Our final sample was sufficiently powered: Grade 2 ($N = 61$), Grade 3 ($N = 73$), and Grade 4 ($N = 82$).

Table 1

Study 1. Descriptive statistics and bivariate correlations for empathy and prosocial intentions pre-intervention (T1) and post-intervention (T2).

	Mean (SD)	95% CI	2	3	4
1. T1 Empathy	3.29 (1.11)	[3.14, 3.44]	0.28***	0.32***	0.15*
2. T2 Empathy	3.34 (1.09)	[3.19, 3.48]		0.12 [†]	0.42***
3. T1 Prosocial intentions	3.81 (0.90)	[3.68, 3.93]			0.29***
4. T2 Prosocial intentions	4.01 (0.79)	[3.91, 4.12]			

[†] $p < .10$.* $p < .05$.*** $p < .001$.

Interpersonal prosocial intentions

We adapted and extended Abrams et al.'s (2015) measure of prosocial intentions. Specifically, children were told, "Imagine you are playing at the park and there are lots of children there". Six scenarios were then introduced to assess children's willingness to help, share, and comfort (e.g., "While you are playing one of the other children comes over to you. The child has nothing to play with and asks if you will share some of your toys. Would you share your toys with the child?"; "Some children are making fun of another child and the child is getting upset. Would you go over and comfort the child?"). Participants responded from 1 (*definitely not*) to 5 (*definitely would*). The six items were mean scored within each timepoint. Cronbach's alphas were .78 (Time 1) and .82 (Time 2).

Results

Descriptives

Means, standard deviations, 95% confidence intervals, and bivariate correlations are presented in Table 1.

Empathy

A mixed model ANOVA with Condition (experimental vs. control) as a between participants factor and Time (pre-intervention vs post-intervention) as a within participants factor, revealed no significant effects of Time, $F(1, 213) = 0.001$, $p = .975$, $\eta^2 < .01$, Condition, $F(1, 213) = 2.54$, $p = .113$, $\eta^2 = .01$, or the Time x Condition interaction, $F(1, 213) = 2.81$, $p = .095$, $\eta^2 = .01$.

Prosocial intentions

The ANOVA revealed a significant main effect of Time, $F(1, 214) = 5.49$, $p = .020$, $\eta^2 = .03$, a significant main effect of Condition, $F(1, 214) = 6.77$, $p = .010$, $\eta^2 = .03$, and a significant Time x Condition interaction, $F(1, 214) = 3.95$, $p = .048$, $\eta^2 = .02^2$.

Pairwise comparisons showed that, in the experimental condition, prosocial intentions significantly increased following the intervention ($M_{T2} = 3.98$, $SE_{T2} = .07$, 95% CI [3.85, 4.11]) compared to baseline levels ($M_{T1} = 3.67$, $SE_{T1} = .08$, 95%CI [3.52, 3.82]) ($p_{T1 \text{ vs. } T2} < .001$). In contrast, in the control condition, prosocial intentions did not differ between Time 1 ($M_{T1} = 4.06$, $SE_{T1} = .10$, 95%CI [3.86, 4.26]) and Time 2 ($M_{T2} = 4.08$, $SE_{T2} = .09$, 95%CI [3.91, 4.26]) ($p_{T1 \text{ vs. } T2} = .826$).

Pairwise comparisons also showed that, at Time 1, prosocial intentions were significantly higher in the control condition than in the experimental condition ($p = .002$). However, as prosocial intentions increased in the experimental condition, there were no longer any differences between the control and experimental conditions at Time 2

(p = .348).

Study 2

Method

Participants and design

The study used a 2 (Condition: experimental vs. control) x 3 (Year Group: 5–6 vs. 7–8 vs. 9–10 years) between participants x 3 (Time: pre-intervention vs. one month post-intervention vs. six month post-intervention) within participants design. A-priori power analysis revealed that to detect a small to medium sized effect ($\eta^2 = .03$) with 90% power for a $2 \times 3 \times 3$ mixed model ANOVA design the study required a total sample size of 162 participants. 174 children (74 male, 100 female) completed the study³. Children were aged between 5 and 10 years (mean age = 7.32, $SD = 1.62$) and were in either kindergarten, Grade 2, or Grade 4 in elementary school.

Participants were sampled from across five demographically and geographically matched elementary schools in the UK. Overall, 87% of participants were born in the UK and this was consistent across condition (90% in the experimental condition and 82% in the control condition). Three of the schools were intervention schools ($N = 105$). Two of the schools were control schools ($N = 69$). The study consisted of three testing times. The first (pre-intervention) took place just before the intervention started, the second took place approximately one month after the intervention ended, and the third took place approximately 6 months after the intervention.

Procedure

As in Study 1, all pupils in the experimental schools took part in a participatory arts program during school time. However, only children in kindergarten, Grade 2, or Grade 4 completed the questionnaires. In the experimental condition local artists worked with every pupil and staff member to document and celebrate acts of kindness. Over a period of seven months, local artists (different to those in Study 1) explored the potential of using creativity and arts activities to help children to engage with and express stories of kindness. Example activities included: painting, producing comic books, contributing to exhibitions, and producing a public performance. Children also went out into the community to interview people to collect stories of kindness. For example, one school visited a local fire department and brought them drinks and biscuits. As in Study 1, the control schools did not receive any form of intervention beyond their routine curriculum-based discussions of kindness.

Measures

Competitive outgroup prosocial intentions

We employed Abrams et al.'s (2015) measure of competitive outgroup prosocial intentions. Specifically, children were told about a sandcastle competition involving teams from their own and another fictitious nearby school. The team that built the biggest and best sandcastle would win a big prize and trophy. Children were then asked three questions to measure their intentions to share, help, and comfort

² To ensure that prosociality did not change in either control school over time, we also conducted a 3 (School: experimental vs. control 1 vs. control 2) x 2 (Time: pre-intervention prosocial intentions vs. post-intervention prosocial intentions) ANOVA. Consistent with our hypotheses, prosociality increased over time in the experimental school ($p < .001$), but did not change in either of the control schools ($p > .796$).

the child (e.g., “As you are building your team's sandcastle, you see a child from the other team running to pick up a spade. He falls down and begins to cry. You could go over to comfort him, but your team needs you to keep building the sandcastle. Would you go over and comfort him?”). Participants responded from 1 (*definitely not*) to 5 (*definitely would*). The three items were mean scored within each timepoint. Cronbach's alphas were as follows: .62 (Time 1), .67 (Time 2), and .73 (Time 3).

Non-competitive outgroup prosocial intentions

We employed Abrams et al.'s (2015) measure of non-competitive outgroup prosocial intentions. Specifically, children were told, “a few weeks later, you are playing together in the park and there are lots of children there, including some from your school and [another local] school”. Three new items were then introduced to assess children's willingness to help, share, and comfort (e.g., “Some children are making fun of a boy from [other local school] and the child is getting upset. The children leave and he begins to cry. Would you go over and comfort the child?”). Participants responded from 1 (*definitely not*) to 5 (*definitely would*). The three items were mean scored within each timepoint. Cronbach's alphas were as follows: .62 (Time 1), .75 (Time 2), and .70 (Time 3).

Results

Descriptives

Means, standard deviations, 95% confidence intervals, and bivariate correlations are presented in Table 2.

Competitive outgroup prosocial intentions

We conducted a mixed model ANOVA with Condition (experimental vs. control) and Year Group (5–6 vs. 7–8 vs. 9–10 years) as between participants factors and Time (pre-intervention vs. one month post-intervention vs. six month post-intervention) as a within participants factor.

There were no significant main effects of Time, $F(2, 336) = 1.69$, $p = .186$, $\eta^2 = .01$, Condition, $F(1, 168) = 1.71$, $p = .193$, $\eta^2 = .01$, or Year Group, $F(2, 168) = 2.00$, $p = .138$, $\eta^2 = .02$. The Time x Year Group interaction was also non-significant, $F(4, 336) = 0.71$, $p = .589$, $\eta^2 = .01$. However, the significant interactions between Time x Condition $F(2, 336) = 3.78$, $p = .024$, $\eta^2 = .02$, and Year Group x Condition, $F(2, 168) = 3.07$, $p = .049$, $\eta^2 = .04$, were qualified by a significant three-way (Time x Condition x Year Group) interaction, $F(4, 336) = 2.98$, $p = .019$, $\eta^2 = .03$ (see Fig. 1 for means and standard errors).

Baseline comparison: Pairwise comparisons showed that there were no baseline differences in competitive outgroup prosociality between the experimental and control conditions among 5–6 year olds ($p = .776$), 7–8 year olds ($p = .610$), or 9–10 year olds ($p = .708$).

5–6 year olds: Pairwise comparisons revealed that, among 5–6 year olds, competitive outgroup prosocial intentions did not significantly change across time in the experimental (all p 's $> .433$) or in the control (all p 's $> .176$) conditions.

7–8 year olds: Pairwise comparisons revealed that, among 7–8 year olds, competitive outgroup prosocial intentions increased following the intervention compared to the baseline, and stayed at the higher level 6 months later ($p_{T1 \text{ vs. } T2} = .028$; $p_{T1 \text{ vs. } T3} = .014$). In contrast, in the control condition, competitive outgroup prosocial intentions did not significantly change over time ($p_{T1 \text{ vs. } T2} = .076$; $p_{T1 \text{ vs. } T3} = .063$).

9–10 year olds: Pairwise comparisons revealed that, among 8–9 year olds, competitive outgroup prosocial intentions increased following the intervention compared to the baseline, and stayed at the higher level 6 months later ($p_{T1 \text{ vs. } T2} = .002$; $p_{T1 \text{ vs. } T3} = .038$). In contrast, in the control condition, competitive outgroup prosocial intentions did not significantly change over time ($p_{T1 \text{ vs. } T2} = .499$; $p_{T1 \text{ vs. } T3} = .833$).

Non-competitive outgroup prosocial intentions

We conducted a mixed model ANOVA with Condition (experimental vs. control) and Year Group (5–6 vs. 7–8 vs. 9–10 years) as between participants factors and Time (pre-intervention vs. one month post-intervention vs. six month post-intervention) as a within participants factor.

Results revealed no significant main effects of Time, $F(2, 336) = 1.35$, $p = .260$, $\eta^2 = .01$, Condition, $F(1, 168) = 3.15$, $p = .078$, $\eta^2 = .02$, or Year Group, $F(2, 168) = 1.48$, $p = .231$, $\eta^2 = .02$. The Time x Condition interaction was significant, $F(2, 336) = 6.53$, $p = .002$, $\eta^2 = .04$. All other two-way interactions were non-significant (all p 's $> .103$). The three-way interaction was also non-significant, $F(4, 336) = 1.13$, $p = .340$, $\eta^2 = .01$.

Baseline comparison: Pairwise comparisons showed that there were no baseline differences in non-competitive outgroup prosociality between the experimental and control conditions among 5–6 year olds ($p = .337$), 7–8 year olds ($p = .537$), or 9–10 year olds ($p = .809$).

Time x condition interaction on non-competitive outgroup prosociality: In order to probe the significant two-way interaction of Time x Condition we conducted pairwise comparisons (see Fig. 2 for means and standard errors). These comparisons revealed that, in the experimental condition, non-competitive outgroup prosocial intentions remained stable over time ($p_{T1 \text{ vs. } T2} = .090$; $p_{T1 \text{ vs. } T3} = .277$). In contrast, in the control condition, non-competitive outgroup prosocial intentions significantly reduced at Time 2 and Time 3 compared to the baseline ($p_{T1 \text{ vs. } T2} = .011$; $p_{T1 \text{ vs. } T3} = .004$). Pairwise comparisons also revealed that non-competitive outgroup prosocial intentions did not differ between the experimental condition and control condition at Time 1 ($p = .297$). However, at Time 2 and Time 3, prosocial intentions were significantly higher in the experimental than in the control condition ($p_{T2} = .017$; $p_{T3} = .015$).

Table 2

Study 2. Descriptive statistics and bivariate correlations for competitive and non-competitive outgroup prosocial intentions pre-intervention (T1), one month post-intervention (T2), and 6 months post-intervention (T3).

Measure	Mean (SD)	95% CI	2	3	4	5	6	7
1. T1 Competitive	2.94 (1.13)	[2.77, 3.11]	0.35***	0.27***	0.49***	0.31***	0.21***	−0.04
2. T2 Competitive	3.14 (1.10)	[2.97, 3.30]		0.56***	0.27***	0.54***	0.41***	−0.03
3. T3 Competitive	3.11 (1.10)	[2.94, 3.27]			0.21**	0.48***	0.60***	0.03
4. T1 Non-competitive	4.07 (0.91)	[3.93, 4.20]				0.31***	0.24**	0.07
5. T2 Non-competitive	4.05 (1.05)	[3.89, 4.21]					0.55***	−0.01
6. T3 Non-competitive	3.96 (1.04)	[3.81, 4.12]						−0.06
7. Age (years)	7.32 (1.62)	[7.08, 7.57]						

Note. Competitive = competitive outgroup-targeted prosocial intentions. Non-competitive = non-competitive outgroup-targeted prosocial intentions.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

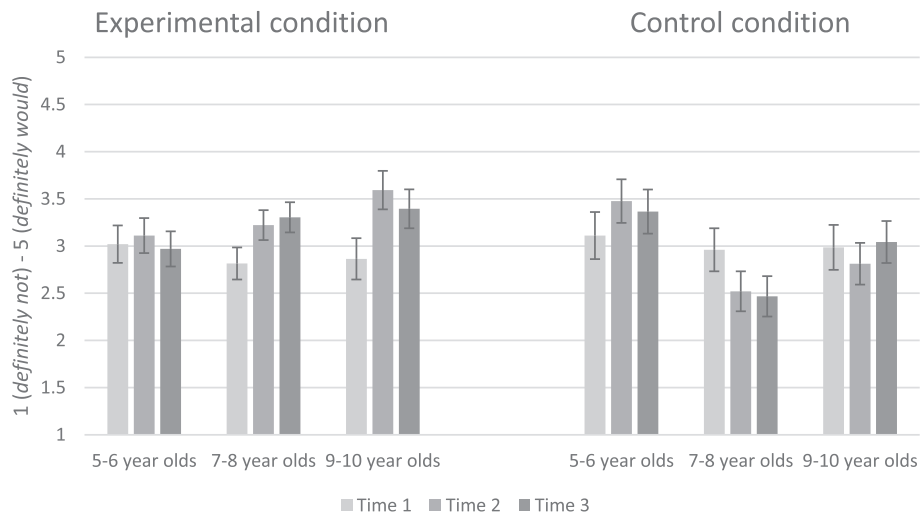


Fig. 1. Study 2 means and standard errors for the 2 (Condition: experimental vs. control) \times 3 (Year Group: 5–6 year olds vs. 7–8 year olds vs. 9–10 year olds) \times 3 (Time: pre-intervention vs. one month post-intervention vs. six month post-intervention) interaction on competitive outgroup prosocial intentions.

General discussion

The present field studies drew on the *Arts and Kindness model* (Broadwood et al., 2012) to test whether engagement in participatory arts promotes prosocial intentions among children. Study 1 showed that children who engaged in a participatory arts program showed increases in interpersonal prosocial intentions, while children in the control condition did not. There were no effects on children's empathy. Moreover, in Study 2, children who engaged in a participatory arts program showed increases in competitive outgroup-targeted prosocial intentions, while children in the control condition did not. These positive effects of condition on competitive outgroup prosocial intentions were long-lasting. Specifically, within the experimental condition, competitive outgroup prosocial intentions remained high six months post-intervention. For non-competitive prosocial intentions, Study 2 showed that while non-competitive prosociality reduced over time in the control condition, it remained stable in the experimental condition. It is possible that there may have been a time of school year effect in the control condition, where children showed greater prosociality at the start of the study (early in the school year) than the middle or end, especially in the non-competitive context. This might reflect that

children become more stressed and less contented as the pressure of work and tiredness cumulates during the school year (Connor, 2003; Hall, Collins, Benjamin, Nind, & Sheehy, 2004). In both contexts, the trend in the intervention conditions was the opposite, suggesting consolidation or even strengthening of prosociality over time. One reason that this might happen is that after children have created and produced artistic outputs, these remain as significant and salient reminders over time, and as children (and perhaps teachers, carers, and peers) reflect on these they gain increased purchase on prosocial motivation. This would be consistent both with the *Arts and Kindness model* (Broadwood et al., 2012) and with the evidence from the longitudinal analyses conducted on population level data from adults by Van de Vyver and Abrams et al. (2017).

Researchers have highlighted the lack of research exploring the social psychological and social-developmental outcomes of arts engagement (Goldstein et al., 2017; Sigel & Gitomer, 1992; Van de Vyver & Abrams, 2017). A small body of recent social developmental research shows that engagement in specific art forms such as music (e.g., Schellenberg et al., 2015) or more specific physical movements such as synchrony (Tunçgenç & Cohen, 2016) can promote prosocial responses during middle childhood. The current research provides a novel

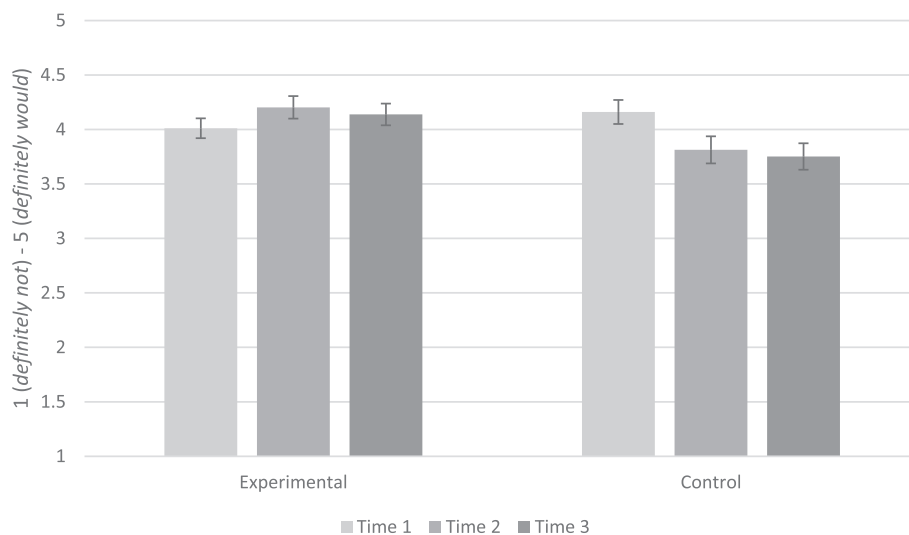


Fig. 2. Study 2, means and standard errors for the 2 (Condition: experimental vs. control) \times 3 (Time: pre-intervention vs. one month post-intervention vs. six month post-intervention) interaction on non-competitive outgroup prosocial intentions.

contribution to this area of research by testing impacts of a participatory arts intervention, testing impacts on outgroup-targeted prosocial intentions, and testing whether effects are long-lasting. Overall, our results are in line with the *Arts and Kindness model* (Broadwood et al., 2012) and the arts and human flourishing model (Tay et al., 2018), and suggest that arts engagement has the potential to act as a social psychological catalyst for promoting prosocial intentions during middle childhood.

Intergroup bias in prosociality appears early in childhood, peaks in middle childhood, and is evident across the lifespan (Abrams et al., 2015; Over, 2018). Rigorous and applied social-developmental research is essential in order to test effective strategies for promoting positive and inclusive intergroup attitudes, intentions, and behaviors in childhood (cf. Rutland, Cameron, Bennett, & Ferrell, 2005). We hypothesized that arts engagement would be effective for promoting inclusive prosocial intentions across competitive and non-competitive contexts. Interestingly, and in line with previous research (cf. Abrams et al., 2015), children's outgroup prosocial intentions varied by the competitiveness of the intergroup context. Specifically, age interacted with condition and time to affect prosocial intentions in the competitive context but not in the non-competitive context. Among 7–8 year olds and among 9–10 year olds, competitive outgroup prosocial intentions increased significantly following the intervention, and effects persisted over the 6 month period. However, among 5–6 year olds there were no changes in competitive outgroup prosocial intentions. In contrast, non-competitive prosocial intentions remained stable in the experimental condition and across age. It seems likely that, to some extent, prosociality is a normative (socially desirable) response when there are no competing motivations, but that this 'default' response must become more deliberative under situations such as competition (cf. Rutland et al., 2010). The arts intervention seems likely to have provided a basis for a more prosocial orientation under such circumstances.

Study 2 revealed interesting longitudinal effects of condition by age. Specifically, 5–6 year olds' competitive outgroup prosocial intentions remained stable across time in both the experimental and control condition. In contrast, 7–10 year olds' competitive outgroup prosocial intentions significantly increased following the arts interventions and these increases were sustained over time. However, in the control condition 7–8 year olds' competitive outgroup prosocial intentions marginally reduced over time and 9–10 year olds' competitive outgroup prosocial intentions remained stable over time. These findings suggest that 5–6 year olds may be less responsive, at least in the relatively short term, to holistic arts interventions. In contrast, among 7–10 year olds, there were significant effects of condition on children's competitive outgroup prosocial intentions. These age-based variations may be due to children's increasing sensitivity to contextual factors (e.g., competition) that impact intergroup dynamics (Abrams et al., 2017; Abrams, Rutland, Palmer, & Purewal, 2014).

In summary, the present evidence demonstrated that engagement in participatory arts: (1) could promote intentions to act prosocially toward outgroup members even in the context of intergroup competition, and (2) that it consolidated prosocial intentions toward outgroup members rather than decaying over the duration of the school year. These findings suggest that facilitating engagement with the arts across childhood can be an effective way to maintain and promote outgroup prosocial intentions.

Limitations and future directions

In this paper we tested the impact of participatory arts engagement on both empathy and prosociality but only found evidence for the latter. However, the *Arts and Kindness model* (Broadwood et al., 2012) proposes three additional routes through which arts engagement can affect prosociality, namely by promoting different values, establishing connections, and learning about others. Further work needs to be done to examine how these different routes may be involved in the

connection between arts engagement and prosociality, and whether each has greater or lesser importance during different periods of child development and socialization. Indeed, further social-developmental research on the arts will enable us to understand how relationships between arts and socio-emotional outcomes may vary by periods of development. This proposal is in line with Eisenberg et al.'s (1999) work which shows that prosocial thoughts, emotions, and behaviors become more consolidated, and individual differences become more evident as children grow into adolescence and then adulthood. We hope that this paper will inspire researchers to become more interested in the potentially wide and pervasive developmental impacts of the arts on socio-emotional outcomes.

Relatedly, it is possible that the absence of effects on empathy may have been due to a measurement issue and that we were simply unable to capture the effect of participatory arts on empathy. Indeed, across the developmental literature there is uncertainty about how to best to measure empathy in this age range. We used an adapted version of Bryant's empathy index which is widely used across this age range. However, reliability coefficients for empathy scales, including the Bryant empathy index, are often lower than desirable (De Wied et al., 2007). Moreover, it is now well-established that empathy entails at least two separate components: sympathy (concern for another based on the apprehension or comprehension of the other's emotional state) and personal distress (an aversive, self-focused emotional reaction to the apprehension or comprehension of another's emotional state) (Eisenberg et al., 1999). However, these two components typically cross-load when measured in middle childhood (De Wied et al., 2007; Garton & Gringart, 2005), perhaps because "children do not differentiate the two or perhaps [...] did not capture any subtle distinction that Davis was trying to make" (Garton & Gringart, 2005).

In the present research we measured prosocial intentions rather than prosocial behavior. Although we cannot assert that children in the experimental conditions would also behave more prosocially, there are good reasons for believing that this might be the case. Many intention-behavior relationships are large and stable because they become habitual (e.g., voting or health behaviors). The challenge for interventions is to change intentions in ways that can change behavior. A meta-analysis of the intention-behavior relationship in adults showed that a medium-to-large change in intention is required ($d = .66$) in order to induce a small-to-medium change in behavior ($d = .36$) (Webb & Sheeran, 2006). Across the present two studies, children's engagement in participatory arts led to small to medium sized changes in their prosocial intentions (effect sizes varied between $d = .28$ to $d = .50$ for the significant effects of the intervention). Consistent with this, another study from our lab (Ali, Abrams, & Van de Vyver, 2019) does indicate that, in middle childhood, outgroup prosocial intentions are significantly positively correlated with outgroup prosocial behavior ($r = .23$). Even if the effects of the intervention on intentions have small or subtle implications for immediate behavior, the gain in prosociality could be expected to yield positive cumulative effects, especially if it is reciprocated by others. It would be desirable for future research to test the impact of arts engagement on behavioral responses directly.

A further research question is whether there are important moderators of the relationship between arts engagement and prosociality. For example, research shows that individual differences in personality (e.g., agreeableness and openness) are associated, albeit to different extents, with arts engagement or with prosociality (Van de Vyver & Abrams, 2017). It is possible that the impact of arts engagement on prosociality may vary depending on these individual differences, and relatedly how aspects of children's temperament may augment or militate against the impact of such interventions.

Applied implications

The Arts are universal and are woven into culture and history. Young children readily engage in the arts. Although the skills,

performance, and consumption of the arts are the subject of substantial research, their role as a societal glue, and in the social lives of children, has been relatively neglected (Sigel & Gitomer, 1992). Publicly financed arts provision is often at the front line of cuts during periods of austerity, often depriving the poorest in society of access (e.g., free entry to museums, etc). In the UK, for example, the arts sector has faced substantial reductions in public and private spending and arts and creative subjects have faced heavy cuts from the school curriculum (NCA, 2017). However, the costs of neglecting the arts may be greater than expected. For example, developmental research shows that engagement in the arts can actually promote cognitive ability in childhood (e.g., Bilhartz, Bruhn, & Olson, 1999; Töugu, Marcus, Haden, & Uttal, 2017). Furthermore, the present research demonstrates that engagement in the arts promotes socio-emotional development in childhood, perhaps improving the lives of children, their peers, and ultimately their wider communities. In order to maximise the positive impacts of arts engagement, and in order to ensure that arts are accessible to all, this evidence contributes to the case for embedding arts engagement across the curriculum.

Summary

Overall, new and longitudinal evidence across two studies provides support for the hypothesis that middle childhood is a period in which the arts can act as a social psychological catalyst that promotes interpersonal and intergroup prosocial intentions. The results suggest that if we wish to sustain cohesive and inclusive societies, increasing access to, and engagement in, the arts from an early age may be a valuable means of doing so.

Open practice statement

Neither of the experiments reported in this article was formally preregistered. The measures are available in the supplementary materials of this paper. The data are available on OSF (https://osf.io/wjby5/?view_only=ee6074f6c3964947a83bb848db57df77).

Acknowledgments

This work was supported by the Economic and Social Research Council (ES/J500148/1) and Arts Council England (ref: 29250727) grants to JV, DA, and SA, and from University of Kent Vice Chancellor's Scholarships to JP and LS. We are grateful to People United (<https://peopleunited.org.uk/>) for their collaborative support to enable this research to be conducted.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.appdev.2019.101069>.

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